

THE PENDING CLAIMS:

The following is the status of the claims of the above-captioned application.

Claims 1-47 (Canceled)

Claim 48 (Previously added). A method for producing a DNA molecule encoding a variant of a reference protein having a known amino acid sequence, comprising

(a) mapping one or more epitopes of the reference protein with immunological and proteochemical techniques; and

(b) forming a DNA molecule encoding the amino acid sequence of the variant, which has an altered amino acid sequence of one or more epitopes of the reference protein, wherein the variant evokes a lower immunogenic response in an animal than the reference protein.

Claim 49 (Previously added). The method of claim 48, wherein the DNA molecule is formed by mutating a DNA molecule encoding the amino acid sequence of the reference protein to alter the amino acid sequence of one or more epitopes.

Claim 50 (Previously added). The method of claim 48, wherein the DNA molecule is formed by synthesizing a DNA molecule encoding the amino acid sequence of the variant, which has an altered amino acid sequence of one or more epitopes of the reference protein.

Claim 51 (Previously added). The method of claim 48, wherein the reference protein is an industrial enzyme.

Claim 52 (Previously added). The method of claim 51, wherein the enzyme is a detergent enzyme.

Claim 53 (Previously added). The method of claim 52, wherein the detergent enzyme is an amylase, cellulase, lipase, oxidase, or protease.

Claim 54 (Previously added). The method of claim 48, wherein the reference protein is a process enzyme.

Claim 55 (Previously added). The method of claim 54, wherein the process enzyme is an amylase, cellulase, lipase, or lyase.

Claim 56 (Previously added). The method of claim 48, wherein the reference protein is a medicinal protein.

Claim 57 (Previously added). The method of claim 56, wherein the medicinal protein is a hormone or medicinal enzyme.

Claim 58 (Previously added). A method for producing a host cell that is capable of producing a variant of a reference protein having a known amino acid sequence, comprising

- (a) mapping one or more epitopes of the reference protein with immunological and proteochemical techniques;
- (b) forming a DNA molecule encoding the amino acid sequence of the variant, which has an altered amino acid sequence of one or more epitopes of the reference protein, wherein the variant evokes a lower immunogenic response in an animal than the reference protein;
- (c) inserting the DNA molecule encoding the variant into a vector suitable for introduction into a cell; and
- (d) introducing the vector into the cell to form the host cell.

Claim 59 (Previously added). A method for producing a variant of a reference protein having a known amino acid sequence, comprising

- (a) mapping one or more epitopes of the reference protein with immunological and proteochemical techniques;
- (b) forming a DNA molecule encoding the amino acid sequence of the variant, which has an altered amino acid sequence of one or more epitopes of the reference protein, wherein the variant evokes a lower immunogenic response in an animal than the reference protein;
- (c) inserting the DNA molecule encoding the variant into a vector suitable for introduction into a cell;
- (d) inserting the vector into the cell to form the host cell;
- (e) cultivating the host cell under conditions suitable for expressing the variant; and
- (f) recovering the variant.

Claim 60 (Previously added). The method of claim 59, wherein the reference protein is an industrial enzyme.

Claim 61 (Previously added). The method of claim 60, wherein the enzyme is a detergent enzyme.

Claim 62 (Previously added). The method of claim 61, wherein the detergent enzyme is an amylase, cellulase, lipase, oxidase, or protease.

Claim 63 (Previously added). The method of claim 59, wherein the reference protein is a process enzyme.

Claim 64 (Previously added). The method of claim 63, wherein the process enzyme is an amylase, cellulase, lipase, or lyase.

Claim 65 (Previously added). The method of claim 59, wherein the reference protein is a medicinal protein.

Claim 66 (Previously added). The method of claim 65, wherein the medicinal protein is a hormone or medicinal enzyme.

Claims 67-76 (Canceled)

Claim 77 (Previously added). A method for producing a DNA molecule encoding a variant of a reference protein having a known amino acid sequence, comprising

- (a) production of one or more variants of the reference protein;
- (b) raising antibodies against the reference protein and the one or more variants thereof;
- (c) mapping one or more epitopes of the reference protein with immunological and proteochemical techniques by testing the antibodies towards the reference protein or the variants thereof; and
- (d) forming a DNA molecule encoding the amino acid sequence of a selected variant, which has an altered amino acid sequence of one or more epitopes of the reference protein,

wherein the selected variant evokes a lower immunogenic response in an animal than the reference protein.

Claim 78 (Previously added). The method of claim 77, wherein the DNA molecule is formed by mutating a DNA molecule encoding the amino acid sequence of the reference protein to alter the amino acid sequence of one or more epitopes.

Claim 79 (Previously added). The method of claim 77, wherein the DNA molecule is formed by synthesizing a DNA molecule encoding the amino acid sequence of the selected variant, which has an altered amino acid sequence of one or more epitopes of the reference protein.

Claim 80 (Previously added). The method of claim 77, wherein the reference protein is an industrial enzyme.

Claim 81 (Previously added). The method of claim 80, wherein the enzyme is a detergent enzyme.

Claim 82 (Previously added). The method of claim 81, wherein the detergent enzyme is an amylase, cellulase, lipase, oxidase, or protease.

Claim 83 (Previously added). The method of claim 77, wherein the reference protein is a process enzyme.

Claim 84 (Previously added). The method of claim 83, wherein the process enzyme is an amylase, cellulase, lipase, or lyase.

Claim 85 (Previously added). The method of claim 77, wherein the reference protein is a medicinal protein.

Claim 86 (Previously added). The method of claim 85, wherein the medicinal protein is a hormone or medicinal enzyme.

Claim 87 (Previously added). A method for producing a DNA molecule encoding a variant of a reference protein having a known amino acid sequence, comprising

- (a) raising polyclonal antibodies against the reference protein;
- (b) mapping one or more epitopes of the reference protein with immunological and proteochemical techniques by:
 - (i) incubating the polyclonal antibodies with the reference protein or with a variant thereof; and
 - (ii) incubating the mixture from step (i) with another protein selected from the group consisting of the reference protein and variants thereof;
- (c) forming a DNA molecule encoding the amino acid sequence of a selected variant, which has an altered amino acid sequence of one or more epitopes of the reference protein, wherein the selected variant evokes a lower immunogenic response in an animal than the reference protein.

Claim 88 (Previously added). The method of claim 87, wherein the DNA molecule is formed by mutating a DNA molecule encoding the amino acid sequence of the reference protein to alter the amino acid sequence of one or more epitopes.

Claim 89 (Previously added). The method of claim 87, wherein the DNA molecule is formed by synthesizing a DNA molecule encoding the amino acid sequence of the selected variant, which has an altered amino acid sequence of one or more epitopes of the reference protein.

Claim 90 (Previously added). The method of claim 87, wherein the reference protein is an industrial enzyme.

Claim 91 (Previously added). The method of claim 90, wherein the enzyme is a detergent enzyme.

Claim 92 (Previously added). The method of claim 91, wherein the detergent enzyme is an amylase, cellulase, lipase, oxidase, or protease.

Claim 93 (Previously added). The method of claim 87, wherein the reference protein is a process enzyme.

Claim 94 (Previously added). The method of claim 93, wherein the process enzyme is an amylase, cellulase, lipase, or lyase.

Claim 95 (Previously added). The method of claim 87, wherein the reference protein is a medicinal protein.

Claim 96 (Previously added). The method of claim 95, wherein the medicinal protein is a hormone or medicinal enzyme.